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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,044	12/27/2001	Ralph H. Johnson	V637-02671 US	8646

128 7590 12/17/2003

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EXAMINER
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NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,044

Applicant(s)

JOHNSON, RALPH H.

Examiner

Dung (Michael) T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/7/03
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 and 19-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 19-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.



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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-16 and 19-59 have been considered but are moot in view of the new ground(s) of rejection.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-16 and 19-59 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-28 and 45-59 of copending Application No. 10/026020, claims 1-6 of copending Application No. 10/026055, claims 1-27 and 29-34 of copending Application No. 10/026016.

This is a provisional obviousness-type double patenting rejection.

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The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: Claims 1, 37 and 48 of Application No. 10/026044 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of GaAsSb. Further claim 48 recites an AlGaAs confinement layers sandwiching said barrier layers. The limitations in the claims of this application is basically the same as the limitation in the claims 1, 45 and 53 of the copending application 10/026020. Claims 1, 45 and 53 of copending application number 10/026020 recites a VCSEL comprising at least one quantum well having a well depth of at least 40 meV and comprised of InGaAsSb. The claims recite alternative substitution elements such as Al, In, N, Sb, with the basic material GaAs. Therefore claims 1-16 and 19-59 of this application and claims 1-28 and 45-59 of copending Application No. 10/026020 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

Claims 1, 37 and 48 of Application No. 10/026044 recite a VCSEL comprising at least one quantum well having a well depth of at least 40 meV and comprised of GaAsSb. Further claim 48 recites an AlGaAs confinement layers sandwiching said barrier layers. The limitation in the claims of this application is basically the same as the limitation in the claims 1, 3 and 5 of the copending Application No. 10/026055. Claims 1, 3 and 5 of copending application number 10/026055 recite a VCSEL comprising at least one quantum well having a well depth of at least 40 meV and comprised of GaAs; and GaAsN and AlGaAs confinement layers. The claims recite

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alternative substitution elements such as Al, In, N, Sb, with the basic material GaAs. Therefore claims 1-16 and 19-59 and claims 1-6 of copending Application No. 10/026055 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

Claims 1, 37 and 48 of Application No. 10/026044 recite a VCSEL comprising at least one quantum well having a well depth of at least 40 meV and comprised of GaAsSb. Further claim 48 recites an AlGaAs confinement layers sandwiching said barrier layers. The limitation in the claims of this application is basically the same as the limitation in the claims 1, 25 and 33 of the copending Application No. 10/026016. Claims 1 25 and 33 of copending Application No. 10/026016 recite a VCSEL comprising at least one quantum well having a well depth of at least 40 meV and comprised of InGaAsSbN, claims 25 and 33 recites AlGaAs confinement layers. The claims recite alternative substitution elements such as Al, In, N, Sb, with the basic material GaAs. Therefore claims 1-16 and 19-59 of this application and claims 1-27 and 29-34 of copending Application No. 10/026016 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

Claims 15-16 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 4. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim

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to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 8 and 14 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 6. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim 10 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 9. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim 24 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 23. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

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Claim 42 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 41.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 45-46 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 40. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 and 19-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell et al (US6359920) in view of Ishikawa (US5841152).

With respect to claims 1-16 and 19-59, Jewell et al disclose a VCSEL (100) comprising an active region (110) further comprising at least one quantum well (126, 128) of GaAsSb having a depth of 40meV (Fig.2b) and further including GaAs barrier layer (54') sandwiching said at least one quantum well and GaAs confinement layer (70') sandwiching said active region and nitrogen to be used at least 1% in group V of semiconductor material in the active region. Jewell also disclose alternative substitution elements such as In, Al, N, Sb with the basic material GaAs and the quantum well is up to and including 50', note col. 5 line 24 to col. 37 line 18, see figures 1-11. However, Jewell do not disclose the quantum well depth is defined as the difference between a valence band offset and a conduction band offset. Ishikawa teaches the quantum well depth is defined as the difference between a valence band offset and a conduction band offset (col.5, l.13-15). For the benefit of calculating the quantum well depth, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Jewell the quantum well depth is defined as the difference between a valence band offset and a conduction band offset as taught by Ishikawa.

### **Communication Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (703) 305-7159. The examiner can normally be reached on 8:30 - 17:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Nguyen (Michael) Dung

  
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